# Is Evidence-Based Practice a plank in the bridge between academia and practice?

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## Abstract

*This paper explores the phenomenon of Evidence-Based Practise (EBP), especially regarding its potential for the Information Systems (IS) discipline. It reviews the implementation of EBP within the established contexts of the health and medical disciplines, as well as some early stage disciplines such as Librarianship and Software Engineering (SE). In doing so, the necessary EBP infrastructure is noted, especially where it may present a resource or cultural challenge. The early work already done in IS is also reviewed. The authors hope that by flagging some of the early findings in this research that it will foster a constructive debate, that will assist in determining the real potential of EBP to bring the academic and practitioner wings of the IS discipline closer together, accompanied by an increase in research relevance.*

## 1. Introduction and rationale

Debate has persisted for decades, almost as long as the discipline itself, over the raison d'être of the Information Systems (IS) discipline and the so-called 'IS crisis' [1]. There are many facets to this complex issue, including two closely linked ones, namely the relevance of IS academic research, and the relationship between the academic and practitioner wings of the discipline. That senior members of the discipline, such as Robey and Markus [2] refer to the situation as the 'crisis of relevance in IS', indicates the seriousness of the situation.

Following in the footsteps of a range of health and medical disciplines, and others such as Software Engineering (SE) and Librarianship, IS is also considering the adoption of Evidence Based Practice (EBP).

The mission of this research (and ultimately its contribution) is to explore the potential of EBP in the IS discipline through the following research questions:

1. What are the main conceptual characteristics of the Evidence Based Practice model?
2. What issues have been identified when implementing the Evidence Based Model into other disciplines such as SE?
3. Is the Evidence Based Practice model suitable for implementation into the IS discipline and how could it best be achieved? And ultimately:
4. Will the Evidence Based Practice Model achieve the objectives of forging a closer alliance between the academic and practitioner wings of the discipline and, will it result in greater levels of research relevance for practice?

This paper is exploratory in nature and thus reports some early findings and raises debate on the emerging key points.

The motivation to adopt EBP variously includes: a desire to bridge the gap between the academic and practitioner wings of a discipline [3]; to increase the relevance of academic research for deployment by the practitioner community [3]; to ameliorate the impact of information overload [4], and to improve the quality of practitioner decision making [5].

The definition of EBP used here closely follows one from the healthcare and librarian disciplines [3]. It has been adapted such that it may be applied to any discipline: 'Evidence Based Practice is an approach to a discipline's work that promotes the collection, interpretation and integration of valid, important and applicable user-reported, practitioner observed, and research-derived evidence. The best available evidence, moderated by user needs and preferences is applied to improve the quality of professional judgements.'

## 2. Research Methodology

The project is being conducted as a phenomenology, according to Creswell [6], wherein the primary data collection method is interviews. The interviewees were chosen in line with Creswell's [6] purposeful sampling technique, the aim being to explore the potential of EBP as broadly and

inclusively as possible, and reach saturation on major issues, while maintaining a diversity of perspective. The framework of enquiry is in the form of recorded, semi-structured, in-depth interviews. The interviews are based on a guideline which is designed to explore the major issues arising from the published research literature. This approach enables the development of a deeper understanding of the issues as they emerge, and suits the exploratory nature of this research [7]. This research is informed philosophically by the pragmatist paradigm which emphasises significance of actions and the external world through interventions and repercussions [8].

## 3. Issues arising from the literature

The approach to this work is inspired by Watson's [9] stated ideals for reviews which are to 'survey and synthesize prior research; identify the relationships between key concepts; identify gaps in MIS knowledge; and set directions and priorities in future research'. This is extended by Kitchenham [10] to include doing 'systematic' reviews 'to provide a framework/background in order to appropriately position new research activities'. Indeed the conduct of 'systematic' literature reviews is becoming more popular as they not only summarize the literature, but also synthesize the findings, the latter being necessary for the pursuit of evidence-based practice [11].

EBP is a somewhat controversial concept whose philosophical origins date back to mid-19th century Paris [12]. The implementation of EBP has been most widely associated with medicine dating from the early 1990's where it has made a significant impact, and mainly as a consequence of that, has since spread in the latter stages of that decade to a diverse range of other disciplines including education, healthcare, dentistry, human resource management and criminology [3]. Its use has also been proposed recently in the SE discipline [5] as well as the complementary medicine field [13].

Librarianship is another discipline where the EBP approach has been proposed, with the aim of bridging the research-practice gap. There has been a long tradition of concern in the librarianship discipline that much of the research emanating from the academic side lacks relevance for day-to-day practitioners [3]. Typically practitioners did not make good use of the available research as they found that it was either divorced from their areas of concern, or that the presentation impaired understanding and application [3]. This situation is highly reflective of that in the IS discipline.

The potential application of EBP to IS has been raised by Moody [14] who sees many parallels between the medical and IS disciplines, including their 'applied' nature. Moody [14] proffers the view that the success of adopting EBP within medicine could readily be reflected in IS, and that there would be a resultant improvement in the relevance of the research. This work has been extended by others [4], [15] in examining the structural requirements for implementing EBP in IS.

A significant methodological approach for EBP is the systematic review [14], the combination of which is also supported by Kitchenham [10] in the push to implement EBP in SE. Moody [16] perceives that a WEB-based solution is the most effective tool to facilitate the development of EBP in IS through its ability to make research information readily available to practitioners. In terms of IS, Atkins and Louw [15] also identify the need to develop critical appraisal guidelines to cater for the wider range of research methods used in IS.

The evidence base is an appealing characteristic of EBP for the IS domain, since it takes account of the best available evidence in all potential forms, including practitioner experience[17]. This is an important move toward better utilizing this largely neglected but potentially significant resource.

EBP is context-sensitive in nature i.e., the characteristics of the situation and the environment in which the decision is being taken are also considered. This has a positive aspect to it as it may avoid the all to common pitfall of a prescriptive 'one size fits all approach' [17]. However, as EBP represents a move away from 'certainty' by recognizing that context plays an important role, as well as acknowledging that high-quality evidence is often lacking, there are also inherent challenges arising from it. A further challenge comes in the form of resistance from members within a discipline [18].

While there are many common features of EBP, there are variations within the models proffered by the disciplines engaged in it. As a related discipline, SE offers a useful reference point for considering the issues to be faced, as well as the potential of EBP in IS. Evidence Based Software Engineering (EBSE) has been modelled on the Evidence Based Medical Model [19]. EBSE has been defined as: 'To provide the means by which current best evidence from research can be integrated with practical experience and human values in the decision making process regarding the development and maintenance of software.'

Professional training is another aspect of a discipline that must be reviewed when considering the implementation of EBP. This was especially apparent in the medical experience where it was recognized that a significant element of the residency program should be based on EBP [18]. Such concerns also extended to the role that text books play.

Information overload is a persistent problem in contemporary society. Established professions such as medicine, acknowledge the problems this causes, and see EBP as a mechanism to address 'a growing body of information, much of it invalid or irrelevant

to clinical practice' [20]. This problem is almost universal and has been one of the major factors to motivate the adoption of EBP by a diverse range of disciplines.

Resistance to the adoption of proven, new treatments has long been a cause for concern in healthcare, and has fuelled the push for adoption of EBP [21]. No doubt this concern relates not only to SE, but also many of the other disciplines contemplating EBP or for whom it may be a beneficial step such as IS.

## 4. Findings so far…

Aside from the literary review, the research so far includes two in-depth interviews. The interviewees have basically supported the literary findings. In particular the following issues have been highlighted:

- The need for training in systematic reviews, both from the perspective of the researcher and the practitioner
- The need for significant resources to conduct systematic reviews, and present the material in accessible ways
- The importance of the facilitating role that information systems should play in the effective delivery of EBP [22]
- There is a serious need in IS for more empirical research, and EBP may act as a facilitator. This is based on a concern that many solutions to IS problems are proposed, without sufficient evaluation in real world settings. This mirrors the situation in SE [23].
- The need for a set of workable procedures for EBP, that have been proven effective. The early pilot work done in IS offers a starting point [24]. The SE experience that is currently unfolding will shed further light [25].

The findings so far present the following potentially significant challenges:

- The cost associated with the implementation of an EBP approach is very significant and it is not apparent how that may be supported. It is important to note that in SE, a two-year evaluative project has been funded to explore the issue [26]. A New Zealand EBP project is also proposed which will include a wide range of disciplines including IS.
- The hype may outstrip reality. Despite the assertions about the embrace of medicine of EBP, it seems that the adoption may not be as widespread as proposed. In fact at the general practitioner level it may not be the case very much at all. The most significant area is within the teaching hospitals and some specialist areas, where there are academic professors who conduct clinical trails through specialist clinics.
- There are many persistent and important problems in the world today for which there have been well-defined, achievable solutions proposed. That many of these solutions do not get enacted is a dangerous precedent for situations such as this. Further research is required to fully explore the barriers and solutions to an effective adoption of EBP, if it is shown to be a panacea for one of the greater ills (discipline divide/research relevance) of the IS discipline. This will entail an examination of the stakeholders with a view to ensuring that the necessary engagement is effective.

## 5. Interim concluding thoughts

The implementation of EBP is a non-trivial consideration, and presents some quite significant challenges. That the medical discipline has described it as 'a paradigm shift' and 'the way of the future', conveys the momentous nature of the transition [18]. The IS discipline may learn many lessons by watching the phenomenon unfold in the related discipline of SE. It may also draw wisdom from other discipline's attempts such as Librarianship, as well as the more mature health and medical disciplines. The wellbeing of the various centres set up to facilitate these newer ventures will provide an ongoing report card of progress. Given the acknowledged difficulties that face any implementation of EBP, as well as the fact that SE and IS are referent disciplines, it would seem sensible to forge a closer, more cooperative and formal association between the communities responsible for facilitating the adoption.

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